ABSTRACT

The present invention relates to an apparatus and methods that immobilize one or more cells associated with magnetic material on a substrate on which are located one or more magnetic receptacle(s). Alternatively, in another aspect the present invention, the device arrays cells associated with magnetic material on a substrate having a pattern of magnetic receptacles disposed thereon. The size of the magnetic receptacle(s) determines the number of target cells that it is capable of immobilizing. The size of the magnetic receptacle is defined by the strength of a localized magnetic field gradient. The localized magnetic field gradient may be derived from 1) permanent magnets embedded in the substrate or alternatively, the localized magnetic field gradient may be derived from an 2) external magnet whose strength is focused by objects of highly-permeable-magnetic material which create localized magnetic field gradients. The invention apparatus comprises a removable cell delivery device and a substrate, which has one or more magnetic receptacles disposed thereon.